REMARKS

This application has been reviewed in light of the Office Action dated May 18, 2005. Claims 1-26 have been presented for examination. No claim amendments have been made. Claims 1, 6, 12, 17 and 23 are in independent form. Favorable reconsideration is requested.

The specification has been amended to conform the Summary of Invention section to the claims as amended in the November 8, 2004 Amendment.

In the May 18, 2005 Office Action, Claims 1-4, 12-15, 17-20 and 22-26 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,366,281 (Lipton); Claims 5, 16 and 21 were rejected under 35 U.S.C. §103(a) as being unpatentable over Lipton; and Claims 6-11 were rejected under 35 U.S.C. §103(a) as being unpatentable over Lipton in view of the Background of the Invention section of the specification.

Claim 12 is directed to an image processing method including the steps of: (1) a depth map extracting step of extracting a depth map, which represents a depthwise distribution of an object, from a stereo image containing object images looking from multiple viewpoints and formed in the same image plane; (2) a multi-viewpoint image sequence generating step of generating a multi-viewpoint image sequence of the object looking from the multiple viewpoints based on the stereo image and the depth map; (3) a three-dimensional image synthesizing step of synthesizing a three-dimensional image based on the multi-viewpoint image sequence; and (4) an outputting step of outputting the three-dimensional image to a printer apparatus through an interface circuit.

The Office Action asserts that the specification defines a depth map as a "horizontal position shift between corresponding points of stereoscopic images" (See

Office Action at page 3). Specifically, with respect to Claim 12, the Office Action states that "the Applicant defines depth to be the *horizontal* displacement between the left and right stereo images" and accordingly adopts this definition for purposes of the Office Action. (Office Action at page 5).

Applicant respectfully disagrees. While the Office Action correctly points out that where an explicit definition is provided by the Applicant for a term, that definition will control interpretation of the term as it is used in the claim (citing MPEP § 2106(II)(C)), the specification, read as a whole, makes clear that the "depth map" feature actually provides depth information and is not limited to a "horizontal position shift between corresponding points of stereoscopic images."[1] The specification, as the Office Action points out, states that the depth map "represents a horizontal position shift of the position of the corresponding point in the right image with respect to each pixel in the left image...." (Specification at page 18, lns. 7-10). However, the specification goes on to state:

> In addition, the depth is also determined by interpolation for the not corresponding points and the other points for which the search of the corresponding point has not been made at all.

(Specification at page 18, lines 13-16). More specifically, the depth of each point, which has been determined to be "not corresponding" in the process of extracting the corresponding points, is first estimated from the position of the other corresponding point which has been determined to be corresponding. (Specification at page 18, lines 17-21).

1/ It is to be understood, of course, that the claim scope is not limited by the details of the described embodiments in the specification, which are referred to only to facilitate explanation.

The depth of the not corresponding point is determined by calculating a weighted average of the depths of the corresponding points determined in the process of extracting the corresponding points while using, as a weight, a parameter of the distance between the not corresponding point and each corresponding point at the position of the corresponding point in the left image. (Specification at page 18, line 21 through page 19, line 3).

Subsequently, based on the depths thus determined, depths are further determined for those points for which the search of the corresponding point has not been made at all. Stated otherwise, since the depths are determined at predetermined intervals, the depth for each of those points is determined by interpolation from the four depths in the vicinity of the point for which the depth is to be determined. (Specification at page 20, lines 5-12).

Thus, while certain points in the depth map may be computed based on a difference in horizontal position, the resulting map actually provides depth information. Or, to put it more explicitly:

> The thus-determined depths are provided as a depth map. Fig. 6 shows a depth map determined from the pair of stereo images shown in Fig. 5.
>
> A dark area in Fig. 6 represents a region at a shorter distance from the camera 2, and as the map becomes lighter, the distance from the camera 2 increases.

(Specification at page 20, line 21 through page 21, line 1).

By contrast, Lipton relates to a method of creating a panoramogram from a pair of planostereoscopic source images; namely, a left image and a right image having

different prospective views which are spaced apart in a horizontal plane. Control points are defined at corresponding locations in the source images, and each control point includes position and color information. Intermediate images between the right and left images are produced by performing a morphing processing between the left and right images.

Lipton discusses using corresponding points defined in the source images in a horizontal direction to create the intermediate images, but does not produce a depth map which represents a depthwise distribution of an object picked up by image sensing means from a stereo image containing object images looking from multiple viewpoints and does not synthesize the three-dimensional image of the object image. Accordingly, Lipton does not teach or suggest "a depth map extracting step of extracting a depth map, which represents a depthwise distribution of an object, from a stereo image containing object images looking from multiple viewpoints and formed in the same image plane" or "an outputting step of outputting the three-dimensional image to a printer apparatus through an interface circuit," as recited in Claim 12.

Accordingly, Applicant submits that Claim 12 is allowable over Lipton.

A review of the other art of record has failed to reveal anything which, in Applicant's opinion, would remedy the deficiencies of the art discussed above, as a reference against Claim 12.

Independent Claims 1, 6, 17, and 23 recite features similar to those discussed above with respect to Claim 12 and, therefore, are also believed to be patentable over Lipton for the reasons discussed above.

The other claims in this application are each dependent from one or another of the independent claims discussed above and are, therefore, believed patentable for the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual reconsideration of the patentability of each on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, Applicant respectfully requests early and favorable continued examination of the present application.

Applicant's undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,

Leonard P. Diana
Attorney for Applicant
Registration No.: 29,296

FITZPATRICK, CELLA, HARPER & SCINTO
30 Rockefeller Plaza
New York, New York 10112-3801
Facsimile: (212) 218-2200

NY_MAIN 531175v1